seated with seat belt and shoulder harness (if provided) fastened.

(g) Control knobs must be shaped in accordance with § 25.781. In addition, the knobs must be of the same color, and this color must contrast with the color of control knobs for other purposes and the surrounding cockpit.

(h) If a flight engineer is required as part of the minimum flight crew (established under § 25.1523), the airplane must have a flight engineer station located and arranged so that the flight crewmembers can perform their functions efficiently and without interfering with each other.

[Doc. No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25–46, 43 FR 50596, Oct. 30, 1978]

### § 25.779 Motion and effect of cockpit controls.

Cockpit controls must be designed so that they operate in accordance with the following movement and actuation:

(a) Aerodynamic controls:

(1) *Primary*.

| Controls | Motion and effect |
|---|---|
| Aileron | Right (clockwise) for right wing down. |
| Elevator | Rearward for nose up. |
| Rudder | Right pedal forward for nose right. |

(2) *Secondary*.

| Controls | Motion and effect |
|---|---|
| Flaps (or auxiliary lift devices). | Forward for flaps up; rearward for flaps down. |
| Trim tabs (or equivalent). | Rotate to produce similar rotation of the airplane about an axis parallel to the axis of the control. |

(b) Powerplant and auxiliary controls:

(1) *Powerplant*.

| Controls | Motion and effect |
|---|---|
| Power or thrust | Forward to increase forward thrust and rearward to increase rearward thrust. |
| Propellers | Forward to increase rpm. |
| Mixture | Forward or upward for rich. |
| Carburetor air heat | Forward or upward for cold. |
| Supercharger | Forward or upward for low blower. For turbosuperchargers, forward, upward, or clockwise, to increase pressure. |

(2) *Auxiliary*.

| Controls | Motion and effect |
|---|---|
| Landing gear | Down to extend. |

[Doc. No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25–72, 55 FR 29778, July 20, 1990]

### § 25.781 Cockpit control knob shape.

Cockpit control knobs must conform to the general shapes (but not necessarily the exact sizes or specific proportions) in the following figure: